Commodity	Parts per million	
	Until Jan. 28, 1996	After Jan. 28, 1996
Nectarines	0.05	0.01
Peaches	0.05	0.01
Pears	0.05	0.01
Plums	0.05	0.01

[FR Doc. 93-31473 Filed 12-21-93; 4:52 pm]
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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AC23

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for Gymnoderma Lineare

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to list the lichen *Gymnoderma lineare* (rock gnome lichen) as an endangered species under authority of the Endangered Species Act of 1973, as amended (Act). This lichen, which is limited to 25 populations in North Carolina and 7 populations in Tennessee, is threatened by collection, logging, and habitat disturbance due to heavy use by hikers and climbers. It is also indirectly threatened by exotic insect pests and possibly air pollution, which are contributing to the demise of Fraser fir forests at higher elevations in the Southern Appalachians. This proposal, if made final, would implement the Act's protection and recovery provisions for *Gymnoderma lineare*.

DATES: Comments from all interested parties must be received by February 28, 1994. Public hearing requests must be received by February 11, 1994.

ADDRESSES: Comments and materials and requests for public hearings concerning this proposal should be sent to the Field Supervisor, Asheville Field Office, U.S. Fish and Wildlife Service, 330 Ridgefield Court, Asheville, North Carolina 28806. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Ms. Nora Murdock at the above address ([illegible]5-1195, Ext. 231).

SUPPLEMENTARY INFORMATION:

Background

Gymnoderma lineare, first described by Evans (1947) as *Cladonia linearis* from material collected in Tennessee, is a squamulose lichen in the reindeer moss family. This species is the only member of its genus occurring in North America (Yoshimura and Sharp 1968). *Gymnoderma lineare* occurs in rather dense colonies of narrow straps (squamules). The only similar lichens are the squamulose species of the genus *Cladonia*. *Gymnoderma lineare* has terminal portions of the strap-like individual lobes that are blue-grey on the upper surface and generally shiny-white on the lower surface; near the base they grade to black (unlike squamulose *Cladonia*, which are never blackened toward the base) (Weakley 1988, Hale 1979). Hale's (1979) description of the species reads as follows: "Squamules dark greenish mineral grey; lower surface white to brownish toward the tips, weakly corticated; podetia lacking, but small clustered apothecia common on low tips. K plus yellow (atranorin)." Weakley further describes the species as having squamules about 1 millimeter across near the tip, tapering to the blackened base, sparingly and subdichotomously branched, and generally about 1 to 2 centimeters long (though they can be longer or shorter, depending upon environmental factors). The squamules are nearly parallel to the rock surface, but the tips curl away from the rock, approaching or reaching a perpendicular orientation to the rock surface. The fruiting bodies (apothecia) are borne at the tips of the squamules and are black (contrasting to the brown or red apothecia of *Cladonia* spp.) (Weakley 1988). The apothecia are borne singly or in clusters, usually at the tips of the squamules but occasionally along the sides; these have been found from July through September (Evans 1947, North Carolina Natural Heritage Program records 1991). The apothecia are either sessile or borne on short podetia 1 to 2 millimeters in height, and the largest of these have a diameter of about 1 millimeter, with most being much smaller. The apothecia are cylindrical in shape and radial in symmetry (Evans 1947). The primary means of propagation of this lichen appears to be asexual, with colonies spreading clonally. *Gymnoderma* was considered a monotypic genus for over a century, until its revision by Yoshimura and Sharp (1968). These authors reclassified Evans' (1947) *Cladonia linearis* as *Gymnoderma lineare* on the basis of its short and solid podetia that lack symbiotic algae.

Gymnoderma lineare is endemic to North Carolina and Tennessee and occurs only in areas of high humidity, either at high elevations, where it is frequently bathed in fog, or in deep gorges at lower elevations. It is primarily limited to vertical rock faces where seepage water from forest soils above flows at (and only at) very wet times. It is almost always found growing with the moss *Andreaea* in these vertical intermittent seeps. This association makes it rather easy to search for, due to the distinctive reddish-brown color of *Andreaea* that can be observed from a considerable distance (Weakley 1988). Most populations occur above 5,000 feet elevation. In Tennessee, it is apparently limited to the Great Smoky Mountains. Other common associates of this species include *Huperzia selago*, *Stereocaulon* sp., *Scirpus cespitosus*, *Carex misera*, *Rhododendron* spp., *Saxifraga michauxii*, *Krigia montana*, *Heuchera villosa*, *Geum radiatum*, and sometimes *Juncus trifidus*. The high-elevation coniferous forests adjacent to the rock outcrops and cliffs most often occupied by the species are dominated by red spruce (*Picea rubens*) and another Federal candidate species, Fraser fir (*Abies fraseri*).

Thirty-seven populations of *Gymnoderma lineare* have been reported historically; thirty-two remain in existence. Seven of these populations are in Sevier County, Tennessee. In North Carolina, two populations remain in Mitchell County, five in Jackson County, four in Yancey County, one in Swain County, three in Transylvania County, four in Buncombe county, two in Avery County, two in Ashe County, one in Rutherford County, and one in Haywood County. Five additional populations were historically known for this species. The reasons for the disappearance of the species at most of these sites are undocumented; however, one is believed to have been destroyed by highway construction. Many of the formerly occupied sites are subjected to heavy recreational use by hikers, climbers, and sightseers. In addition, the coniferous forests, particularly those dominated by Fraser fir at the high-elevation sites, are being decimated by the balsam wooly adelgid, an exotic insect pest, and possibly by air pollution. The death of the forests adjacent to the habitat occupied by this lichen has resulted in locally drastic changes in microclimate, including desiccation and increased temperatures.

The continued existence of this species is threatened by trampling and

associated soil erosion and compection, other forms of habitat disturbance due to heavy recreational use of the habitat by hikers, climbers, and sightseers, as well as by development for commercial recreational facilities and residential purposes. It is also potentially threatened by logging, collectors, and directly or indirectly by air pollution.

Only 7 of the remaining 32 populations cover an area larger than 2 square meters. Most are 1 meter or less in size. It is unknown what constitutes a genetic individual in this species, and it is possible that each of these small colonies or patches consists of only a single clone (Weakley 1988). Over the past decade several of the currently extant populations have undergone significant declines (Paula DePriest, Smithsonian Institution, personal communication, 1992; Karin Heiman, Environmental Consultant, personal communication, 1992), some within as little as 1 year (Alan Smith, Environmental Consultant, personal communication, 1992). Although all but five of the remaining populations are in public ownership, many continue to be impacted by collectors, recreational use, and environmental factors. Although no populations are known to have been lost as a result of logging operations, this is a potential threat.

Federal government actions on *Gymnoderma lineare* began with the 1990 publication in the Federal Register of a revised notice of review of plant taxa for listing as endangered or threatened species (55 FR 6184); *Gymnoderma lineare* was included in that notice as a category 2 species. Category 2 species are those for which listing as endangered or threatened may be warranted but for which substantial data on biological vulnerability and threats are not currently known or on file to support proposed rules.

Subsequent to that notice, the Service received additional information from the North Carolina Natural Heritage Program (Alan Weakley, North Carolina Natural Heritage Program, personal communication, 1991) and the Smithsonian Institution (DePriest, personal communication, 1992); this information and additional field data gathered by the North Carolina Natural Heritage Program, the Fish and Wildlife Service, and the National Park Service (Keith Langdon and Janet Rock, Great Smoky Mountains National Park, personal communication, 1992; Bambi Teague, Blue Ridge Parkway, personal communication, 1991) indicate that the addition of *Gymnoderma lineare* to the Federal List of endangered or threatened plants is warranted. The Service included this species as category 1 candidate in the September, 1993, plant notice of review (58 FR 51167).

Summary of Factors Affecting the Species

Section 4(a)(1) of the Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal list. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Gymnoderma lineare* are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Gymnoderma lineare is a narrow endemic, restricted to high-elevation mountaintops and cliff faces and the lower-elevation gorges in the Southern Appalachians of western North Carolina and eastern Tennessee (see "Background" section for specific distributions). Although populations are declining and vanishing for reasons that are, in many cases, not clearly understood, destruction and adverse modification of habitat pose a major threat to the remaining populations of this species. Fourteen percent of the historically known populations have been completely extirpated, and many others have been severely reduced in size. Only 32 populations, most less than 1 square meter in extent, remain.

Five of these populations are on privately owned lands, with one slated for residential development within the near future. Although the majority of the remaining populations are on publicly owned lands, most of these are subject to heavy recreational use, and many have been damaged as a result. Four populations contain 75 percent of the remaining plants. Three of these are located on lands administered by the National Park Service and the U.S. Forest Service, at sites where they are subjected to intense use by hikers, climbers, and sightseers. The only other relatively large population is located on a privately owned site which has been developed as a commercial recreational facility. All the known populations combined cover a total area of approximately 142 square meters. All five privately owned sites are unprotected and are located in an area that is rapidly developing as a center for resorts and tourism.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Gymnoderma lineare is not current a significant component of the commercial trade in native plants. H (1979) stated, "This is one of the mos unusual endemic lichens in North America and should not be collected individuals." Nevertheless, many populations have been decimated by scientific collectors. Paula DePriest (personal communication, 1992) observed that at least one population the Great Smokies was virtually wipe out by collections made during a fiel trip of lichenologists. Given the very small size of most colonies and the sl growth rate of this species, extirpatio by collecting or by natural accident (such as slides or floods) is a distinct possibility (Weakley 1988). Many of t populations are easily accessible, bein close to trails or roads. Publicity coul generate an increased demand and intensify collecting pressure (see "Critical Habitat" section for reasons why critical habitat is not being designated).

C. Disease or Predation

This taxon is not known to be threatened by disease or predation.

D. The Inadequacy of Existing Regulatory Mechanisms

Gymnoderma lineare is afforded leg protection in North Carolina by North Carolina General Statute, Article 20, Chapter 106, Sections 202.1–202.8, th prohibits intrastate trade and taking o State-listed plants without a State permit and written permission of the landowner. *Gymnoderma lineare* is listed in North Carolina as threatened; is not currently listed in Tennessee. State prohibitions against taking are difficult to enforce and do not cover adverse alterations of habitat or unintentional damage from recreation use. The Endangered Species Act will provide additional protection and encouragement of active management for *Gymnoderma lineare*, particularly Federal lands.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

This taxon is rare and vulnerable du to its specialized habitat requirements for bare rock faces with a precise amount of moisture and light. As mentioned in the previous sections of this proposed rule, most of the remaining populations are small in numbers of individuals and in terms o area covered by the plants. Therefore, there is probably little genetic variability in this species, making it

more important to maintain as much habitat and as many of the remaining colonies as possible. Rock slides, severe storms or droughts, or other natural events could easily eliminate populations of this lichen.

In recent years the spruce-fir forests adjacent to the high-elevation cliffs and rock outcrops occupied by this rare lichen have suffered dramatic declines due, at least in part, to airborne pollution and the impacts of an exotic insect, the balsam wooly adelgid. The impacts of this forest decline on *Gymnoderma lineare* cannot be accurately assessed at this time. Even though rock gnome lichen often grows in exposed places, the drastic decline of adjacent high-elevation forests may result in excessive desiccation of the moist sites required by the species. This theory would seem to be supported by the fact that *Geum radiatum*, already federally listed as endangered, is showing drastic declines at many of the same sites. With all but seven of the remaining populations of *Gymnoderma lineare* being less than 2 square meters in size, and with this species' very slow growth rate, even relatively small declines could pose a significant threat to the long-term survival and recovery of the species.

In addition to the indirect effects of air pollution on this species' habitat, lichens are known to effectively accumulate a wide variety of pollutants washed from the atmosphere by precipitation (St. Clair 1987). Photosynthetic rates, respiration rates, and membrane integrity of lichens have all been found to be very sensitive to a wide range of common air pollutants, including sulfur dioxide. St. Clair (1987) states, "Indeed lichen physiological processes appear to provide an indication of pollution damage long before any visible thallus necrosis or changes in community structure can be detected." A field study conducted by Pearson and Rodgers (1982) showed that membrane integrity in lichens is severely impacted following exposure to sulfur dioxide. Lawrey (1987) found that increasing levels of sulfur dioxide pollution had resulted in the elimination of some species of lichens in an area just north of the range of *Gymnoderma lineare*. Heavy metals and ozone also have been found to negatively affect lichens' potassium efflux, chlorophyll content, and photosynthetic rates (Puckett 1976, Nash and Sigal 1979, Sigal and Taylor 1979). Several observers have already noted declines in populations of *Gymnoderma lineare* which cannot be directly attributed to physical disturbance of the habitat (Weakley, personal communication, 1992; DePriest, personal communication, 1992; Shawn Oakley, The Nature Conservancy, North Carolina Field Office, personal communication, 1992). With the extremely small size of most of the remaining populations, declines of just a few centimeters a year could result in the imminent extinction of all but three of the remaining populations of this species.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Gymnoderma lineare* as endangered. With 14 percent of the known populations having been completely extirpated and all the remaining populations subject to some form of threat, this species warrants protection under the Act. With the small number of individuals and area covered by the remaining populations, and with significant declines having been documented in many of these, this species is in danger of extinction throughout all or a significant portion of its range and, therefore, qualifies as an endangered species under the Act. Critical habitat is not being designated for the reasons discussed below.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary propose critical habitat at the time the species is proposed to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for *Gymnoderma lineare*. Publication of critical habitat descriptions and maps would increase public interest and possibly lead to additional threats for this species from collecting and vandalism (see threat factor "B" above). The species has already been subjected to excessive collecting by scientific collectors at several sites. Increased publicity and a provision of specific location information associated with critical habitat designation could result in increased collection from the remaining wild populations. Although taking of endangered plants from lands under Federal jurisdiction (and from privately owned lands under certain circumstances—see "Available Conservation Measures" section) and reduction to possession is prohibited by the Endangered Species Act, taking provisions are difficult to enforce. Publication of critical habitat descriptions would make *Gymnoderma lineare* more vulnerable and would increase enforcement problems for the U.S. Forest Service and the National Park Service. Also, the populations on private lands would be more vulnerable to taking. Increased visits to population locations stimulated by critical habitat designation, even without collection of plants, could adversely affect the species due to the associated increase in trampling of the fragile habitat occupied by this lichen. The lichen is easily scraped off its rocky substrate, and denuded habitat is not quickly recolonized. The Federal and State agencies and land owners involved in managing the habitat of this species have been informed of the plant's locations and of the importance of protection; therefore, it would not be prudent and no additional benefit would result from a determination of critical habitat.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in the destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency

must enter into formal consultation with the Service.

The U.S. Forest Service and the National Park Service have jurisdiction over portions of the species' habitat.

Federal activities that could impact *Gymnoderma lineare* and its habitat in the future include, but are not limited to, the following: Construction of recreational facilities (including trails, buildings, or maintenance of these facilities), use of aerially applied retardants in fire-fighting efforts, road construction, certain timber-harvesting techniques, permits for mineral exploration, and any other activities that do not include planning for the species' continued existence. The Service will work with the involved agencies to secure protection and proper management of *Gymnoderma lineare* while accommodating agency activities to the extent possible.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. All trade prohibitions at section 9(a)(2) of the Act, implemented by 50 CFR 17.61 would apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export any endangered plant, transport it in interstate or foreign commerce in the course of a commercial activity, sell or offer it for sale in interstate or foreign commerce, or remove it from areas under Federal jurisdiction and reduce it to possession. In addition, the 1988 amendments (Pub. L. 100–478) to the Act protect endangered plants from malicious damage or destruction on Federal lands, and the removal, cutting, digging up, or damaging or destroying in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. It is anticipated that few trade permits would ever be sought or issued since *Gymnoderma lineare* is not common in the wild and is not commercially cultivated. Requests for copies of the regulations on listed plants and inquiries regarding prohibitions should be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, MS 432, 1849 C Street, NW., Washington, DC 20240 (703/358–2104).

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, any comments or suggestions from the public, other concerned governmental agencies, scientific community, industry, or any other interested party concerning any aspect of this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Gymnoderma lineare;*

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by section 4 of the Act;

(3) Additional information concerning the range, and distribution, of this species; and

(4) Current or planned activities in the subject area and their possible impacts on *Gymnoderma lineare.*

Final promulgation of the regulation on *Gymnoderma lineare* will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and addressed to the Field Supervisor, Asheville Field Office (see "ADDRESSES" section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

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Author

The primary author of this proposed rule is Ms. Nora Murdock Asheville Field Office, U.S. Fish and Wildlife Service, 330 Ridgefield Court, Asheville, North Carolina 28806 (704/665–1195, Ext. 231).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulations Promulgation

Accordingly, the Service hereby proposes to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. § 17.12(h) is amended by adding the following, in alphabetical order under *Cladoniaceae,* to the List of Endangered and Threatened Plants, to read as follows:

§ 17.12 Endangered and threatened plants

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
•	•	•	•	•	•	•
Cladoniaceae—Reindeer moss family:						
•	•	•	•	•	•	•
Gymnodenna lineare.	Rock gnome lichen	U.S.A. (NC, TN)	E		NA	NA
•	•	•	•	•	•	•

Dated: November 9, 1993.

Richard N. Smith,

Acting Director, Fish and Wildlife Service.

[FR Doc. 93-31590 Filed 12-27-93; 8:45 am]

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